Simple Solutions for Overhead Work

The Problem

On some construction jobs you need to work overhead, reaching up with one or both arms raised above your shoulders. Your head may be tilted back, looking up to see what you are doing. Whether you are drilling, driving fasteners, or finishing drywall, overhead work puts stress on your shoulders and neck. Eventually it may lead to serious muscle and joint injuries.

You are at risk of injury if you do this work often or for long periods of time. The risk is increased if you frequently hold tools, equipment, or materials above the height of your shoulders, or if you twist your body while your arms are in an awkward, raised position.

When you work with your arms raised, injuries are even more likely if you have to use repetitive movements or a lot of force. For example, using some hand tools overhead requires you to repeat the same motions over and over, as well as apply force, while you are reaching up. Lifting, holding, and positioning heavy or awkward objects while your arm is raised can also require force.

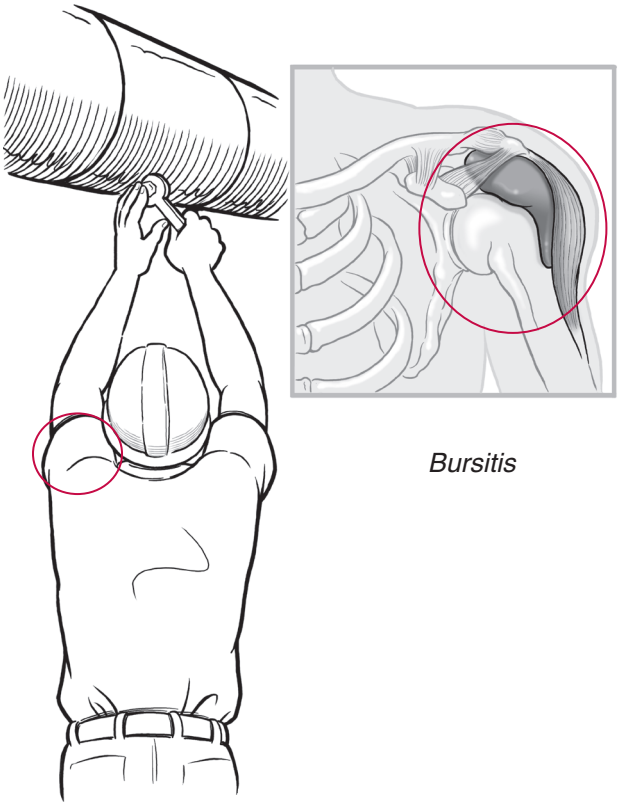
Working overhead also may reduce your ability to do the job safely and productively. For example, you are at risk of many types of injury if your vision is obstructed, if you have an unstable footing, or if you have trouble holding or positioning a tool.

Injuries & Disorders

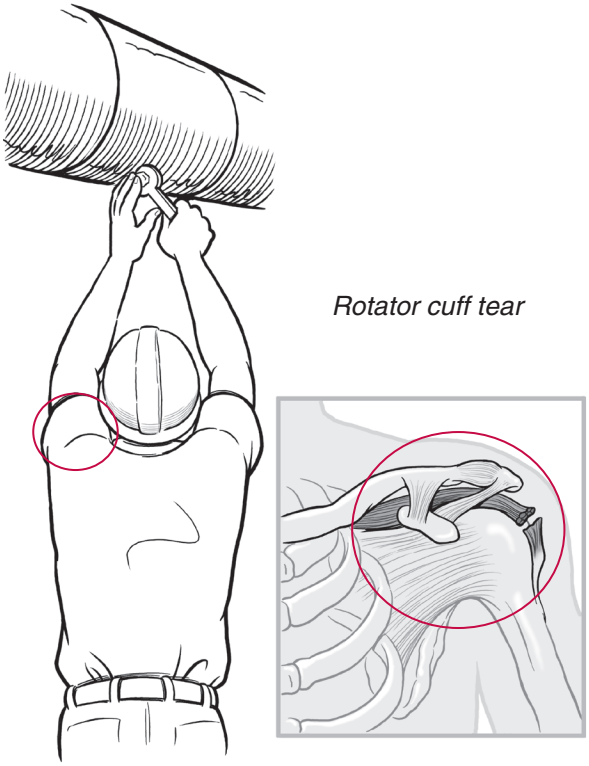
Below are some of the injuries you may develop when you work overhead.

Shoulder. Shoulder pains and injuries are usually the result of overworking the shoulder. When you keep your arm raised above your shoulder (or keep your arm stretched out), your shoulder begins to ache after a short time. It tires easily.

The muscles in your shoulder are connected to your arm by *tendons*. Between the tendons and bones are small sacs of fluid called *bursa*. They lubricate the shoulder so it moves easily. Continual stress on your shoulder can cause the bursa to get squeezed, swollen, stiff, and inflamed (*bursitis*). Bursitis



Bursitis



Rotator cuff tear

can make it painful, or even impossible, to raise your arm. Continual stress on the shoulder can also cause the shoulder tendons to become inflamed, resulting in pain (*tendinitis*).

Another shoulder injury is the *rotator cuff tear*. The rotator cuff is a group of four muscles and their tendons that wrap around the front, back, and top of the shoulder joint. These let the shoulder function through a wide range of motions. Stress on the shoulder may cause them to tear, which can make routine activities difficult and painful.

A NIOSH review of studies found that the risk of developing shoulder pain or a shoulder muscle or joint disorder is increased by the combination of frequently working with raised shoulders (60° or more), using repetitive arm or shoulder movements while in this position, and applying force while in this position.

Neck. The neck is a complicated structure composed of seven bones called *cervical vertebrae,* one below another. It also has *cartilage*, *nerves*, *muscles*, and *ligaments* (long fibers supporting the muscles). When you keep your neck bent forward or backward, or bend it frequently, the muscles work harder and the ligaments flex and stretch. Eventually the ligaments can partially tear, resulting in a *neck sprain*.

Another common condition is *tension neck syndrome.* This is muscle strain that results from long periods of looking up. It can cause neck stiffness, muscle spasms, and pain in the neck or radiating from the neck.

It is also possible to develop *arthritis* in the neck. The risk of arthritis increases for workers who already have had a neck injury and still do overhead work.

According to a 1997 NIOSH study, your risk of developing neck pain or a neck musculoskeletal disorder is increased by the combination of frequently working with your neck flexed (15° or more), using repetitive movements, and applying force while in this position.

Some Solutions

Overhead work cannot be eliminated from construction, but it is possible to change how you do it so it is easier on your body. Solutions are available that can reduce the level of stress on your shoulders, neck, and arms. They may also reduce how often and how long the body is subjected to this stress. Many of the solutions can also eliminate other potential safety hazards and increase productivity.

The type of task and the site conditions will determine which solutions are best for you. A few possible solutions for specific overhead tasks are explained in Tip Sheets #6–9.

General solutions for doing overhead work with less risk of injury include:

Change materials or work processes. One of the most effective solutions may be to use materials, building components, or work methods that are less labor-intensive, so the task takes less time and you reach overhead for a shorter period. For example, installing embedded concrete inserts into ceiling forms would eliminate the prolonged overhead drilling needed to place all-thread rods for ceiling systems. An individual construction worker or subcontractor usually cannot make a decision like this. Certain changes may require the approval of the building owner, architect, engineer, or general contractor.

Change tools and/or equipment. For example, use bit extensions for drills and screw guns that allow you to hold the tool at waist or shoulder level rather than above your head. Use mechanical lifts or hoists to raise and position building materials rather than lifting them manually. Or use a lift to raise yourself so you are closer to the work. In a few cases, cost and site conditions may restrict the use of such equipment.

Change work rules and provide training. Contractors can encourage the use of equipment like extensions, lifts, and hoists that reduce the need for workers to raise their arms. Site rules can limit the amount of time that workers do overhead work without a break. Also, a policy of providing ergonomics training may help workers more quickly identify potential problems and find effective solutions.

Mechanical lifts reduce the strain of holding and positioning objects

Person-lifts provide stable platforms for overhead work and eliminate handling of ladders and scaffolding